

In the claims:

Please amend the claims as follows:

1. (Withdrawn) A process or manufacturing ratchet wheels, comprising the steps of:

(1) creating a master mold consisting of an upper and a lower mold part,

the upper mold part having a number of posts each of which has a sidewall which is complementary in shape to a driving recess of a finished product of a ratchet wheel, the lower mold part having a number of round cavities, the posts being designed for being inserted into their respective round cavities formed on the lower mold part;

(2) forming a wax pouring space by assembling the upper and lower mold parts together, of which the wax pouring space comprising a number of annular pouring cavities enclosed by the round cavities and the posts, each of the annular pouring cavities being a copy of a cast product of the ratchet wheel;

(3) injecting melt wax into the pouring-cavities to form a wax pattern;

(4) forming a finished wax pattern by separating the mold parts from each other after the melt wax is solidified;

(5) forming a pattern tree by stacking the finished wax pattern made according to the above steps atop another;

(6) forming a shell by dipping the pattern tree into a slurry and then drying the same;

(7) dewaxing the pattern tree by heating;

(8) solidifying molten metal which is poured into an empty cavity left by the pattern tree; and

(9) destroying the shell to form cast products of the ratchet wheels.

2. (Withdrawn) The process for manufacturing ratchet wheels as claimed in Claim 1, further comprising the steps of:
 - (1) polishing and cleaning the cast products;
 - (2) forming two annular grooves by machining the cast products with a CNC lathe on their respective sidewalls of the cast products to form annular semi-products;
 - (3) forming a plurality of teeth on respective sidewalls of the semi-products by milling the semi-products to form finished products.
3. (Withdrawn) A process for manufacturing ratchet wheels comprising the steps of:
 - (1) creating a master mold consisting of upper and lower mold parts,

the upper mold parts having a number of posts each of which has a sidewall being complementary in shape to a driving recess of a finished product of a ratchet wheel, the lower mold part having a number of round cavities, the posts being designed for being inserted into their respective round cavities formed on the lower mold part;
 - (2) forming a molding cavity by assembling the upper and lower mold parts together, of which the molding cavity comprises a plurality of cavities enclosed by their respective round cavities and posts;
 - (3) kneading a mixture of fine metal powders and binder system together in an extruding machine under heat and pressure to create a melt feedstock mixture;
 - (4) forming a green compact by injecting the kneaded feedstock mixture into the molding cavity under pressure;
 - (5) forming cast products having a desired shape by separating the mold parts from each other after the green compact cools;
 - (6) debinding the cast products; and

- (7) sintering the cast products.
4. (Withdrawn) A process or manufacturing ratchet wheels, comprising the steps of:
- (1) loading metal powders having a uniform density into a molding cavity of a die;
 - (2) forming a green part by axially compacting the metal powders under pressure created by an upper and a lower press part of a forming machine;
 - (3) ejecting the green part from the die by removing the upper press part;
 - (4) heat-treating the green part by sintering;
 - (5) forming an annular semi-product by providing two annular grooves on a sidewall of the green part; and
 - (6) forming a finished product by providing a plurality of teeth on the sidewall of the semi-product.
5. (Original) A process for manufacturing ratchet wheels comprising the steps of:
- (1) forming a cylindrical forging billet by hot or cold forging, of which the forging billet having a thru hole consisting of inter-communicating recesses which are pre-formed in a forging die;
 - (2) providing a broach having teeth formed thereon;
 - (3) machining the forging billet into a workpiece having a sidewall with two annular grooves on the sidewall;
 - (4) forming a semi-product having a driving recess which is complementary in shape to the teeth by operating the broach through the workpiece along the thru hole and;
 - (5) forming a finished product having a plurality of teeth on a sidewall thereof by milling the semi-product.

6. (Original) A process for manufacturing ratchet wheels comprising the steps of:
- (1) forming a cylindrical forging billet by hot or cold forging, of which the forging billet having a thru hole consisting of inter-communicating recesses which are pre-formed in a forging die;
 - (2) providing a broach having teeth formed thereon;
 - (3) shaping the thru hole into a driving recess having a desired shape by operating the broach through the forging billet along the thru hole;
 - (4) forming a finished product having a sidewall and two annular grooves formed on the sidewall by machining the forging billet; and
 - (5) forming a finished product having a plurality of teeth on the sidewall thereof by milling the semi-product.
7. (Withdrawn) A process for manufacturing ratchet wheels comprising the steps of:
- (1) forming a cylindrical forging billet by hot or cold forging, of which the forging billet having a thru hole consisting of inter-communicating recesses which are pre-formed in a forging die;
 - (2) machining the forging billet into a workpiece having a sidewall with two annular grooves formed on the sidewall;
 - (3) forming a semi-product by punching the workpiece along the thru hole to form a driving recess with a desired shape;
 - (4) forming a finished product having a plurality of teeth on the sidewall thereof by milling the semi-product.

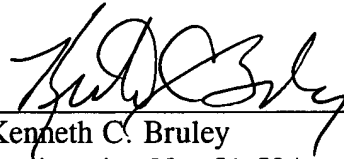
8. (Withdrawn) A process for manufacturing ratchet wheels comprising the steps of:
- (1) forming a cylindrical forging billet by hot or cold forging, of which the forging billet having a thru hole consisting of inter-communicating recesses which are pre-formed in a forging die;
 - (2) shaping the thru hole into a driving recess having a desired shape by punching the forging billet along the thru hole;
 - (3) forming a semi-product having a sidewall and two annular grooves formed on the sidewall by machining the forging billet; and
 - (4) forming a finished product having a plurality of teeth on the sidewall thereof by milling the semi-product.

Applicants have been required to select among species of the claimed invention, those being Species I: claims 1-2; Species II: claims 3-4; Species III: claims 5-6; and Species IV: claims 7-8. Applicants elect Species III: claims 5-6. Applicants have withdrawn claims 1-4 and 7-8 and reserve the right to file these claims in divisional patent applications.

Please charge any additional fees or credit any overpayment to Deposit Order Account No. 50-1196. Applicants submit that the application is in condition for allowance. The Examiner is encouraged to contact the undersigned should there be any remaining issues.

Respectfully submitted,

NELSON MULLINS RILEY
& SCARBOROUGH, L.L.P.



Kenneth C. Bruley
Registration No. 51,504

1320 Main Street
Columbia, South Carolina 29201
(404) 817-6132
Fax (803) 255-9831